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Some observations on the economy of Bruttium under the later Roman empire

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Amphora production in Calabria

In 1971 David Peacock suggested that one of the fabrics defined in his classification of Dressel 1 type amphorae could possibly have come from the area of present-day Calabria, in southern Italy. Of particular note was the abundance of mica visible in the hand-specimen, and the fact that it was characterized by inclusions of granitic origin. This led him to recall the wine-producing districts around Thurii and Cosentia lying on the edge of a granite massif. Since his seminal paper, much new evidence has come to light that indicates, with little doubt, that Calabria was indeed involved in the production of amphorae and, furthermore, that such production began in Greek times and may have continued into late Roman and Byzantine times.

The earliest vessels so far recognized appear to have been wine containers produced, during the 4th or 3rd c. B.C., at the Greek colony of Locri on the Ionian Sea (Manzo 1983). Graeco-Italic amphorae were also presumably produced, at the same time, at Medma, where kiln wasters have been discovered, and at Hipponion, which bears an image of the amphora form on coin types alluding, perhaps, to the strength of local wine production (Van der Mersch 1986, 573). Peacock's petrological work alongside Dressel's (1879; *CIL* 15.2, 4590) proposition of reading Reg(hinum) (modern Reggio Calabria) painted on a vessel of form Dressel 1 from the Castro Pretorio, Rome, support the hypothesis of production for exportation during the late republic.

Local amphora manufacture under the early empire is almost certainly attested through numerous vessels of form Dressel 2-4 discovered during various excavations in Calabria. Though kiln sites and wasters have not yet been recognized, the fabrics of these vessels seem repeatedly to be identical macroscopically to the fabrics employed for the production of local coarse wares. Excavations at Pompeii have yielded the shoulder of an amphora, possibly of form Dressel 2-4, bearing the stamp PIX.BRVT (V + T are ligatured). De Caro (1985) interprets the stamp as reading *pix brut(tia)* or pitch from Bruttium, which is eminently possible given the importance of the region for the supply of both timber and pine resin. Two other amphora stamps may be tentatively assigned to Calabria. A Dressel 2-4 rim and neck from Vibo Valentia, in suspiciously local-looking, micaceous, cream-coloured fabric, bears the stamp ?ROM.. on the neck (information B. Sangineto). Furthermore, on distributional grounds the stamp EPIDI/CALAMVS or CALAM on Dressel 2-4 handle sherds (A + M ligatured in the second example) could be local. One example is known from Montedoro, near Taranto (Callender 1965, 88, no. 228), whilst two come from Sibari (*NotSc Supp.* 3, 1970, 530). Wine exportation is professed by the *tituli* remembering Rhegium on amphorae from the Castro Pretorio deposit in Rome, published by Dressel (*CIL* 15. 4357).

The evidence leads to the conclusion that amphorae were produced in Calabria from Greek through hellenistic/republican times down to the early empire. This in itself is not surprising, though the recognition of the various vessel types, respective production areas, time-spans, contents and distributions should eventually help to clarify the importance of Calabria within the ancient economy.

The late Roman economy in Calabria

Over the last 20 years or so, a number of scholars have demonstrated that the progressive disappearance of Italian amphorae from the archaeological record over the 1st and 2nd c. A.D. is closely linked to the decline of the slave mode of production and the decline of the Italian economy in relation to the provinces. The recent study by A. Tchernia argues forcefully that wooden barrels largely replaced amphorae for transporting wine in the later Roman empire. Only fairly recently, however, has it been demonstrated that amphora production in Italy did, indeed, continue after the 2nd c. and that in at least

one area (the Bay of Naples) it had not ceased even in the 8th c. (Arthur in press). Nonetheless, an absolute decline in the quantity of surplus agricultural produce available for maritime exportation from Italy is certain, as is the decline of traditional areas of wine supply — Etruria, Latium and Campania. In fact, although Campania can now be shown archaeologically to have continued to export wine, the relative quantities of amphorae produced and dispatched overseas were minimal when compared to late republican and early imperial times. I believe, however, that the argument for the decline of Italian surplus exportation, though valid, is frequently expressed in the wrong manner. What is needed is an assessment of each separate production area within the peninsula in relation to the whole, both Italy and the rest of the Mediterranean.

Mounting information from certain parts of the south and, in particular, from Calabria is revealing a pattern of late imperial settlement and land-use quite distinct from that recognized in other parts of Italy and perhaps (along with Sicily) a certain accumulation and redistribution of wealth. Cracco Ruggini (1986, 246-47) attributes the growth of the Sicilian agricultural reservoir particularly to the assignment of Egyptian grain to the *annona* of Constantinople in 333 and the occupation of North Africa by the Vandals in 439 which, whilst not leading to the embargo of provisions from the Maghreb, must have induced Rome to make the most of internal reserves. The boom in the Sicilian economy may have reflected positively on the neighbouring province of Lucania et Brutii. Lucania seems to have developed principally as a supply base for meat and in particular pork. This could be illustrated archaeologically by the high percentages of pig bones from late contexts at S. Giovanni di Ruoti, Basilicata, and the Schola Praeconum, Rome (Steele 1983, 81-82; Whitehouse *et al.* 1985, 189-90). Bruttium seems, instead, to have been more prominent in the provision of wine (*CTh* xiv.iv.4, 367) though until now the archaeological evidence for such a rôle has been lacking.

Amphora Keay Type LII: a Calabrian provenance

Recent archaeological work not only seems to corroborate the textual evidence for an expansion in the Calabrian economy, but adds further elements towards the debate on the processes involved. In the publication of work on later Roman amphorae from Catalonia, Keay (1984, 267-68) presented 4 vessels to illustrate his type LII, suggesting that they came from the eastern Mediterranean on the basis of the "micaceous fabric" characterizing the examples found in Spain. Subsequent publications by other scholars have generally subscribed to the same hypothesis, in one case going so far as to state that the vessels, known in Italy as "anfore con orlo sagomato a spigolo" are of "produzione orientale di incerta origine" (Carignani *et al.* 1986, 39-41). Enough evidence is now available to demonstrate that the hypothesis of an eastern origin is fallacious, and that most, if not all, of the vessels ascribed to Keay's type LII originated in Calabria. The clearest indication seems to be provided by the type's distribution. All sites with late Roman contexts that I have personally examined in modern Calabria, save the villa at Gioiosa Ionica, have yielded examples of the type. These include Vibo Valentia (various sites), Nicotera (Mortelleto site, 1982), Bova Marina (Costamagna excavations, 1986), Reggio Calabria, Casignana, Crotone and Scolacium (Arslan's excavations, 1986). None of these sites has yet yielded statistical information on the presence of the type, though it is extremely common both at Bova Marina and Vibo Valentia (where it probably represents over 60% of 5th-c. amphorae), and very common at both Reggio Calabria and Casignana. Furthermore, its greatest distribution outside of modern Calabria is within Italy itself (particularly in Rome), as well as at Marseilles. Indeed, 16.35% of vessel rims from a context dating to 430-475 at the Temple of Magna Mater on the Palatine belong to the type (Carignani *et al.* 1986, 39-41). At Marseilles 15-16% of the total rims, bases and handles, from a context dating to the first half of the 5th c., are likewise assignable to the type (Bonifay 1986). Outside Rome, examples are known from Syracuse (Sicily), Naples, Capua, Tarquinia (Pian di Spille), Albenga, Genova and Classe. Outside Italy, in the western Mediterranean they reached Porto Torres in Sardinia, Marseilles, Arles, Lyon, Portout and the Dramont F wreck at Saint-Raphael (Var) in France, and Ampurias, Tarragona and Seville in Spain. In the eastern Mediterranean they are present, so far, only at Athens, Argos and Corinth, with a stray example coming from the Yassi Ada II wreck off the coast of southern Turkey, and others in the Museum of Zadar, Yugoslavia (see in general Appendix 3 below).



Further evidence of Calabrian production is suggested by the discovery of 3 handles belonging to the type, stamped with a *menorah* motif, coming from a Jewish settlement at Bova Marina (see p.138).

The available petrological data appear to fit the spectrum provided by southern Calabria's geological makeup which, though complex, is largely dominated by a granite massif. The only available thin-section data reported for the type (for the Genoese example) describes an "impasto con granuli di scisti cristallini medio-grandi, arenaria, feldspati, (plagioclasio ed ortoclasio), molte miche (muscovite e biotite), molto microfauna con massa di fondo carbonatica" (Gambaro and Lambert 1987, 241-43, no. 162). In studying Dressel 1 amphorae, Peacock (1979, 164-65) isolated a somewhat similar fabric characterized by "quartz, potash and some plagioclase felspar, biotite, granite fragments, distinguished in the hand-specimen by glistening flecks of mica," for which he postulated a Calabrian source. Whatever the precise fabric compositions of these vessels, which are sure to vary according to source, recurring characteristics in the hand-specimen appear to be the variety of visible inclusions and often mica-schists, together with the presence of abundant and conspicuous mica. The fabric variations encountered are likely to reflect the presence of different kiln sites in the same geographical region. Thus despite the absence of identified kiln sites, I feel that the evidence is strong enough to be able to assign a Calabrian provenance to most, if not all, vessels identifiable as Keay type LII.

The function and chronology of Keay LII

What, however, is an amphora of type Keay LII? Formal parameters for definition of the type have not yet been determined, though enough presumed examples of the vessel exist for a preliminary set of parameters, based on formal and metric data, to be set forth (Appendix II). On the one hand, measurements tend to demonstrate a certain standardization in both form, size and capacity, whilst, on the other, morphological and fabric variations seemingly betray the existence of a number of individual workshops. Essential features are the small triangular to flanged rim and false foot-ring base, whilst handles are generally oval-sectioned, flattened or ribbed, with occasional round-sectioned examples, and bodies are usually smooth, with sporadic closely-ribbed specimens (cf. Appendix I, nos. 1-9; fig. 1). Nonetheless, the amount of variation in both fabric and form is such as to demand further research, and this is probably best initiated through petrological analyses.

Though there is no direct evidence regarding contents, small amphorae like these are most likely to have contained wine, a product for which parts of coastal Calabria were known. A high performance liquid chromatography study of examples from the Schola Praeconum may indicate the presence of wine residue (Rothschild Boros 1981, 86; Passi *et al.* 1981, Whitehouse *et al.* 1985, 200-3). Some examples have yielded traces of pitch-coated inner surfaces, in particular those from Athens, where micro-environmental soil conditions were perhaps favourable for the preservation of 'mastic' (Robinson 1959, 8).

The chronological production span of the type may be assessed according to the evidence from various excavations. Though the acme of circulation was in the 5th c., examples were already on the market by, at least, the second half of the 4th c. if not slightly earlier. The initial stated occurrence of the amphora is between the early and mid 4th c. at the Constantinian Basilica of the Via Labicana, Rome (Manacorda 1981, tav. V. PM.78.34/80/85), though so far this is a singleton. At the Lungotevere Testaccio (information Mauro Incitti) and the Palatine (Carignani *et al.* 1986, 39-41 - saggio O), Rome, they make a modest appearance before the end of the 4th c. whilst being totally absent in two large groups of similar date from Naples. At Carthage they appear sometime after 360 (information C. Panella). At Corinth an example appears in a well fill dating to the end of the 4th or early 5th c. (Williams and Zervos 1983, 25 no. 68). Perhaps the trend revealed in the numerical quantification of sherds of the type, in respect to the total number of amphora fragments from ambiente V at the Lungotevere Testaccio is exemplificatory:

Context	%	date
US 201=215	2.49%	End 4th c.
US 106	4.94%	End 4th-early 5th c.
US 104	10.14%	c. third quarter 5th c.
US 103	11.56%	ditto
US 102	11.36%	ditto

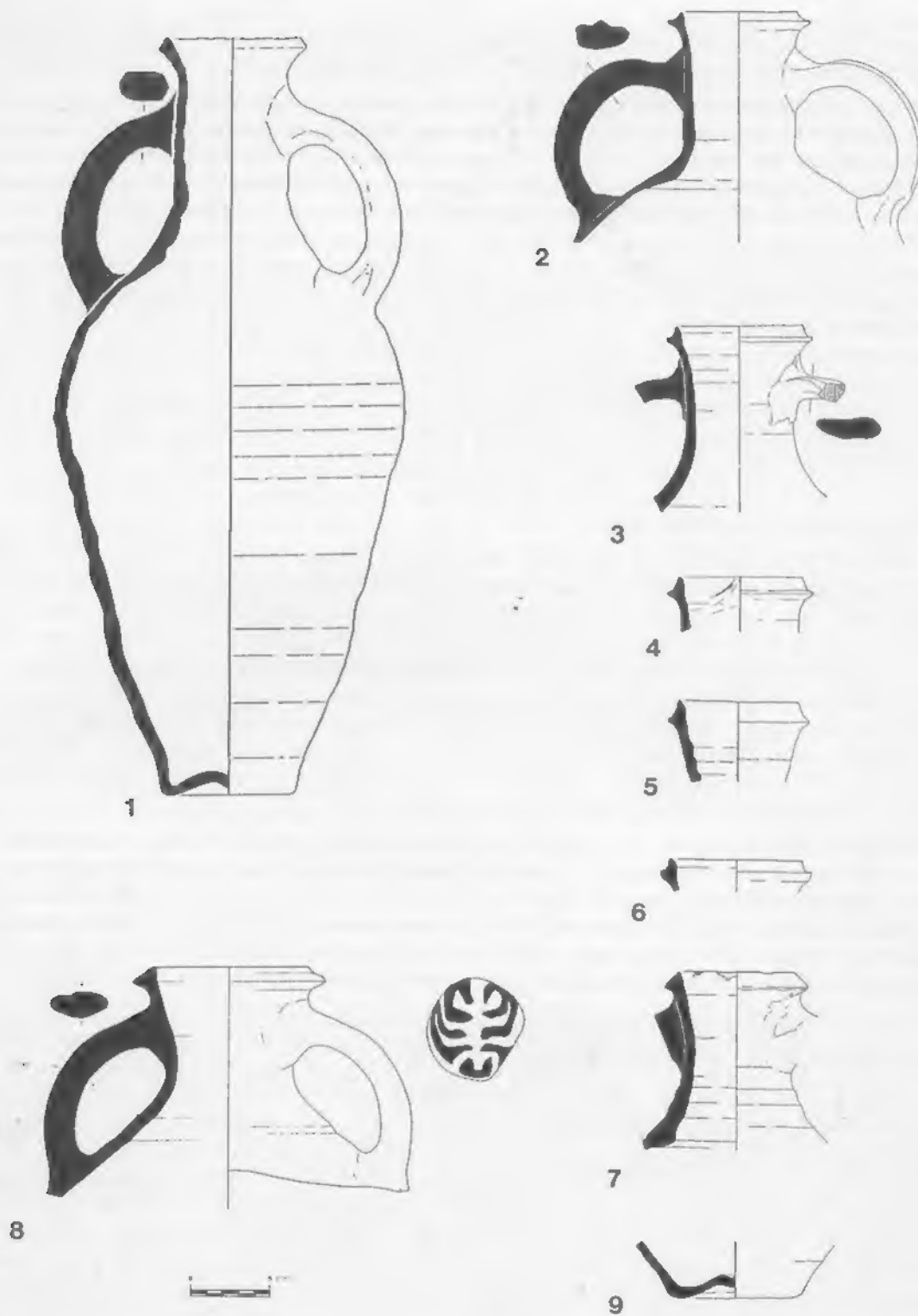


Fig.1. Amphorae of type Keay LII from Marseilles (no. 1), Rome (no. 8) and Naples (the remainder)

Most other recorded examples of the amphora type come from 5th c. contexts, with a few later strays. They are, for example, present in 6th c. contexts at Argos and Scolacium, while in Naples (Carminiello ai Mannesi, fase VII), though present in the early part of the century, they are by no means as frequent as in the deposits dating to the mid 5th c. (CM, fase VI). This may be explained by the cessation of manufacture of the type during the later 5th or early 6th c., but not, I think, by the end of wine exportation in amphorae from Calabria.

A Calabrian successor to Keay LII?

Excavations at the site of Carminiello ai Mannesi, Naples, have revealed a new amphora type dating to the late 5th-6th c., which, on fabric, may be the Calabrian successor to Keay LII (Appendix I nos. 10-12; fig.2). In the hand-specimen they are sandy and highly micaceous with light grey (Munsell 7.5YR 7/2) to creamy-pink surfaces (7.5YR 8/4), on occasion with buff (7.5YR 7/4) cores. One example in thin-section revealed frequent grains of quartz, limestone and foraminifera, together with some potash and plagioclase feldspar, amphibole and biotite mica (information from David Williams). There are thus some characteristics in common with the fabric of the example examined under thin-section from Genova. Much of Calabria is composed of crystalline rocks, though there are some limestone formations as well, particularly in the north of the region and to the west of Stilo.

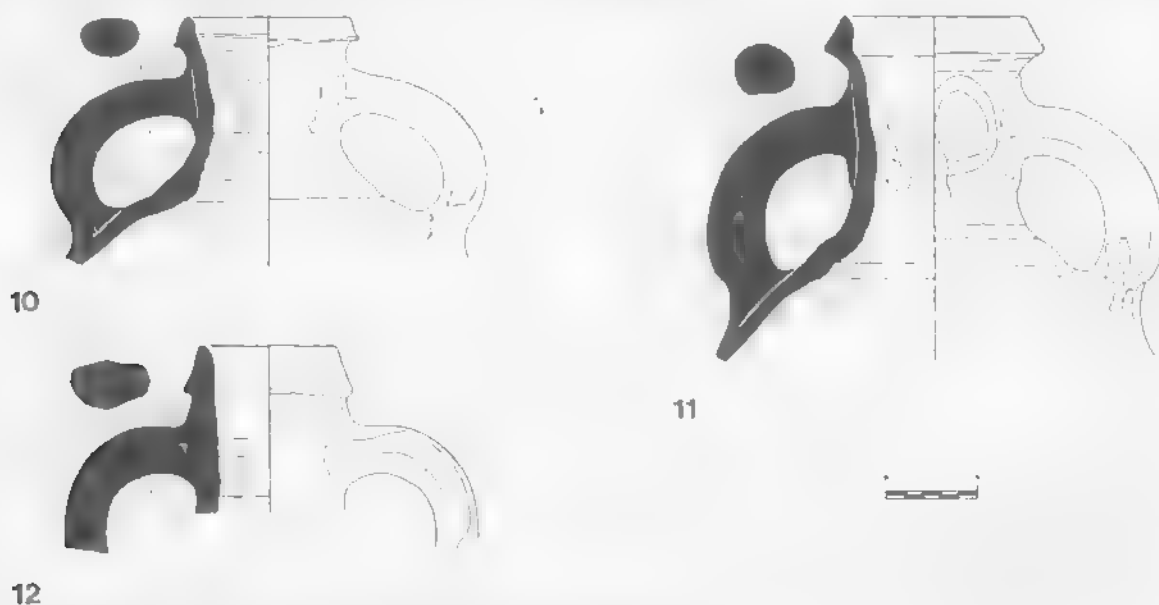


Fig.2. Unclassified Calabrian(?) amphorae from excavations in Naples

The type does not appear to be as common as the earlier vessel and has not been widely recognized, though similar amphorae were unearthed by Claudio Sabbione in excavations at the villa of Casignana, Calabria (context US 62 - not published), and one or two fragments may have been found at Carthage (information John Hayes). Therefore if this type is also Calabrian, it is legitimate to postulate a decline in the amount of wine exported during the 6th c., further supporting the view of a retrenchment in economic interaction throughout the Mediterranean in this period.

Discussion

The distribution of type Keay LII seems to be particularly restricted. Outside Calabria, the largest absolute number of examples so far recognized is in Rome, although from percentages Marseilles appears to have imported a similar amount as the capital. In Naples the relative quantities are lower. There are no percentage figures for Carthage or Athens, though at the latter site 4 examples have been recognized. No

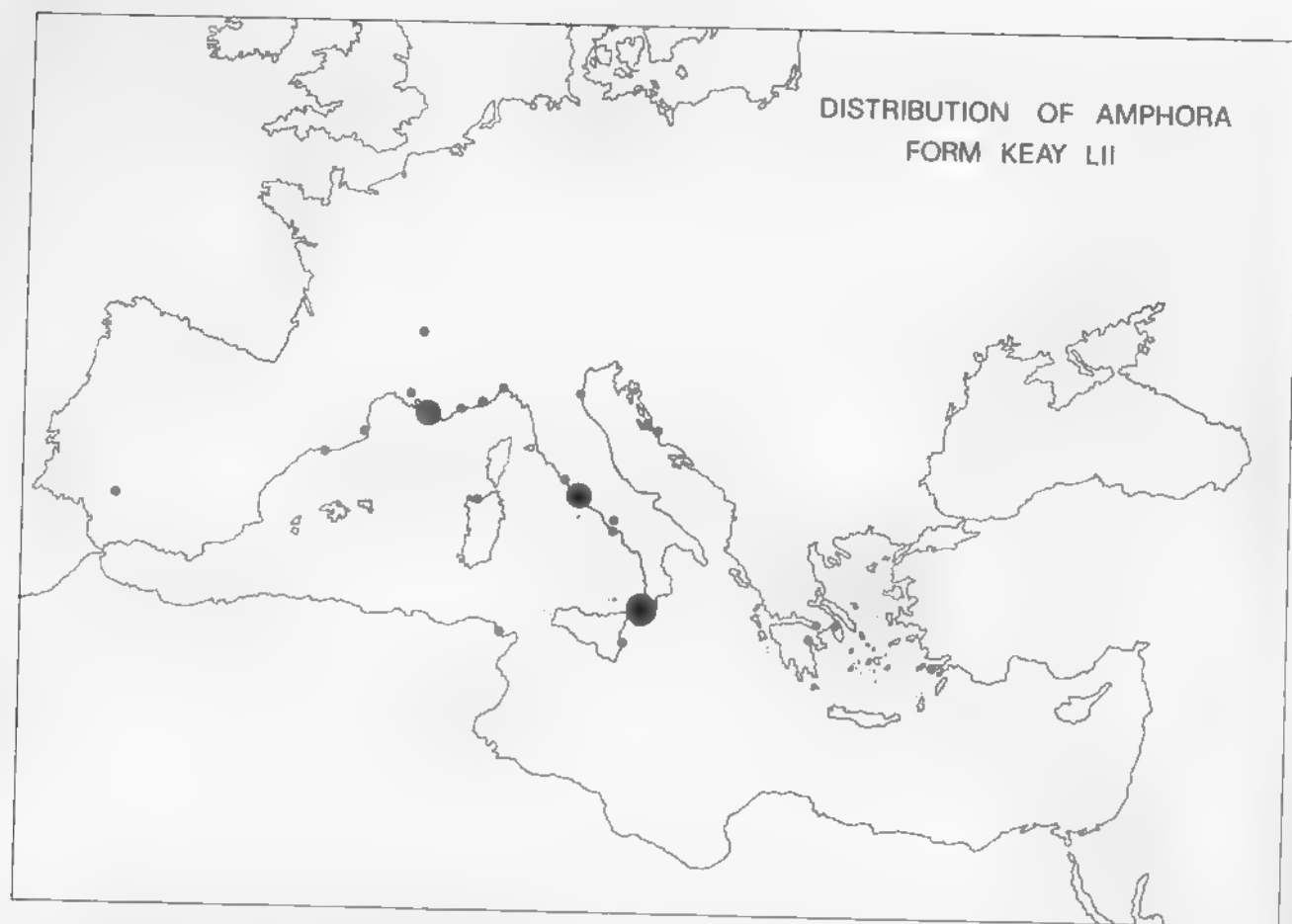


Fig. 3. Distribution map of amphorae type Keay LII. Small dots represent from 1 to 10 examples, medium-size dots (Marseilles and Rome) represent over 10 samples, whilst the large dot (Calabria) represents ■ large, undefined, number examples are known from rural sites outside the production region. Evidently there was massive shipment of Calabrian wine directed principally up Tyrrhenian coastal Italy to Rome and Marseilles (fig.3, Appendix III). Excluding the atypical find from the Yassi Ada wreck, single examples have been found on two wreck sites, Dramont F and Pian di Spille, Tarquinia, both ships sailing up Tyrrhenian coastal Italy with cargoes of Tunisian ?oil amphorae (for the type cf. Manacorda 1977, 171-90; Keay 1984 type XXV). This suggests that part of the Calabrian produce was picked up by ships carrying cargoes which originated in the area of Carthage and were destined principally for Rome. Such a distribution, if borne out by future work, may reflect directional trade between producers and consumers, the latter being the major urban centers such as Rome, Marseilles and Athens with their respective service or market areas.

Further information is available to help support this postulate. First of all, we possess the mid 4th-c. testimony of the anonymous author of the *Expositio* to the importance of Bruttium in the production of wine, a commodity distributed in Rome from the time of Aurelian. In the text, alongside an interest in Lucanian pork, I would thus read an official interest in the production and consumption of Calabrian wine, a product in which 'latifondisti' also stood to make a substantial profit on the open market (Vera 1983, Giardina 1986). Institutional interest on the part of the Church and Jewish communities might also be inferred from the evidence. At Bova Marina in southern Calabria excavations by Liliana Costamagna have revealed the settlement of a Jewish community with a synagogue and amphorae of type Keay LII stamped on their handles with the *menorah*. Two *menorah* stamps, on amphorae of uncertain form, were discovered in Rome in the last century (CIL 15.2. 1. 3551; Callender 1965, 1811h), whilst recent excavations of the Basilica Hilariana on the Caelian in Rome have uncovered a further example (Appendix 1 no. 8), this time certainly on the handle of an amphora type Keay LII and from a 5th-c. abandonment deposit

(information F. Pacetti; Carignani and Pacetti forthcoming). The excavation of a mid 5th-c. context at the Schola Praeconum on the Palatine has yielded the handle of a further amphora of this type, bearing a chi-rho stamp. Three other chi-rho stamps, on vessels of uncertain type, also come from Rome (*CIL* 15. 2.1. 3551a-c; Callender 1965, 1812), though two of them are quite possibly North African. It is difficult to know what we might make of the other certain stamp on an amphora of form Keay LII, ASELLUS, also from the Schola Praeconum. The name is known in Calabria at this period, and one may cite, for example, the homonymous late 5th c. archdeacon from Scolacium (Gelasius, *PL* 59, 141-42).

The evidence from stamps, which are quite rare in late antiquity, seems to underline a particular link between producer and consumer, and, though it is tenuous, I would suggest that we are witnessing archaeological documentation of institutionalised directional or tied trade. The *menorah* stamps reveal a Jewish community producing food, possibly even kosher and for their own people. As at Ramat Rahel in the Levant, where christograms were stamped by a monastic community on Palestinian bag-shaped amphorae (Aharoni 1964, figs. 9 and 24), it is possible that the chi-rho stamp on the Schola Praeconum vessel was the signature of an ecclesiastical authority in Calabria. Furthermore the very quantity of amphorae of this type reaching Rome and being stored in the state's riverine warehouses of the Lungotevere Testaccio may indicate government supply from the *res privata* in *Italia suburbicaria* or through taxation or acquisition. If the trade of Calabrian wine in these containers was essentially free or governed by market forces, one might anticipate a spatial distribution apparently more random, as appears for other amphora types. Indeed at present it is noteworthy that the vessels concerned are rare at Carthage (totally absent in the Michigan and British reports), in Spain, somewhat rare in the Adriatic, and absent at Benghazi and in the greater part of North Africa and the eastern Mediterranean, all regions concerned in the movement of foodstuffs from the major late antique production areas.

The identification, in Keay type LII and perhaps in a group of vessels from Naples, of late Calabrian amphora types serves to demonstrate a certain agrarian welfare of a region, in a period where historiographical tradition can negate Italian economic enterprise. Nevertheless, rather than viewing this new evidence in the light of Italy's own productive sphere, I would see it as a reflection of North Africa/Sicily's late antique economic apogée, prior to the Justinianic reconquest. Though Calabria may be seen as the poor relation, the area reflects the dynamic links existing between North Africa and Sicily, so delightfully illustrated by the adoption of African mosaic models by 'latifondisti' in the island.

Acknowledgements:

Dott. Mauro Incitti and dott. Francesco Pacetti have kindly made available unpublished material from excavations respectively at the Lungotevere Testaccio and the Basilica Hilariana, Rome. Examination of material in Calabria was permitted through the kind offices of the Superintendent Elena Lattanzi, the various area inspectors, dott. Silvana Iannelli, Liliana Costamagna and Claudio Sabbione, and dott.ssa Luciana Borrello. The excavations in Naples were conducted by the author on invitation of the Superintendent Enrica Pozzi and the local inspector dott. Giuseppe Vecchio. I should like finally to thank Francesco Colussi for having inked original drawings of the author.

APPENDIX 1: DESCRIPTION OF THE ILLUSTRATED VESSELS

Type Keay LII (fig.1)

Nos.2-7 and 9-12 are from Carminiello ai Mannesi, Naples

1. La Bourse, Marseilles. From a context dating to the first half, if not the second quarter, of the 5th c. Granular pink-beige fabric with greenish-beige to pink-beige surfaces, large white inclusions, abundant mica and small black grits. Bonifay 1986, 282-83, fig. 8, no. 29.
2. Context US 11, no. 99. From a mid 5th-c. context. Medium hard gritty orange fabric, with a light cream-brown exterior surface, abundant minute mica and scattered calcareous inclusions.
3. Not stratified, no. 3. Recovered from uncontrolled excavations, with material dating predominantly to the mid 5th c. Hard gritty medium orange-red fabric, with a paler exterior surface and numerous visible white grits.
4. Not stratified, no.17. Hard very micaceous, orange-pink fabric with beige slipped surfaces and occasional large calcareous and other inclusions.
5. Context US 269, no. 160. Context of third quarter of 5th c..
6. Context US 286, no. 1172. Medium hard micaceous yellowish-cream fabric (10YR 8/3.5) with scattered minute angular grey and white inclusions and rare ?iron-oxide.

7. Contexts US 251 and 253, no. 192. Short-necked example. Soft orange fabric, yellowish-orange towards the exterior, with an overall cream slip, abundant minute mica and other scattered inclusions.
8. Basilica Hilariana, Ospedale Militare del Celio, Rome. Late 5th-c. context. Short-necked example with *menorah* stamp (Carignani and Pacetti forthcoming).
9. Context US 256, no. 716. Basal sherd in a medium hard extremely micaceous, pale brownish-yellow fabric with scattered angular to rounded quartz and quartzite grains (<0.5mm.), occasional white nodules and voids and red-brown inclusions.

Unclassified Calabrian(?) amphorae (fig. 2).

10. Context US 248, no. 122. From a context dating to the end of the 5th or early 6th c. Hard gritty, highly micaceous, pale cream-brown fabric, with cream-yellow surfaces.
11. Context US 248, no. 129. From a context dating to the end of the 5th or early 6th c. Soft gritty pale orange fabric, with a cream exterior surface and abundant mica and minute scattered calcareous and dark particles.
12. Context US 275, no. 432. Soft pale, brownish-cream fabric with a greenish-cream exterior surface and scattered minute mica, limestone and other inclusions.

APPENDIX II. METRIC DATA (in cm.) TOWARDS THE DEFINITION OF AMPHORA TYPE KEAY LII.

A = Athens (Robinson 1959).

AR = Argos (Piérart and Thalmann 1980).

K = Kenchreai, Corinth (Adamsheck 1979).

M = Marseilles (Bonifay 1986).

C = Catalonia (Keay 1984).

O = Ostia (Righi 1975).

CM = Carminiello ai Mannesi, Naples (Arthur in preparation).

<i>Example</i>	<i>Tot. ht.</i>	<i>Tot. girth</i>	<i>Max. rim diam.</i>
AL31	45.0	26.5	-
AM234	52.3	29.1	-
AM302	47.5	24.0	-
AM323	42.5	24.5	-
ARA13	-	25.0	9.5
KRC 12	52.0	24.6	-
M29	48.0	24.0	8.8
M30	-	-	8.0
M31	-	-	9.2
M32	-	24.0	-
M33	-	26.0	8.2
M34	-	-	8.4
O	49.0	-	-
CLII.3	-	-	9.2
C LII.4	-	24.5	9.2
CM3	-	-	9.1
CM 17	-	-	9.2
CM 99	-	-	9.0
CM 160	-	-	9.0
CM 1172	-	-	9.6
MEAN AV.	48.1	25.2	9.0

APPENDIX III. AMPHORAE OF TYPE KEAY LII KNOWN TO THE WRITER (see map fig.3).

Italy

Albenga, Liguria — Lamboglia 1956, 738 + 742, fig. 12, no. 26.

Bova Marina, Calabria — excavations by Liliana Costamagna; personal observation.

Capua, Campania — Arthur 1987, 530-31, no. 56.

Casignana, Calabria — excavations by Claudio Sabbione; personal observation.

Classe, Emilia-Romagna — Stoppioni Piccoli 1983, 134 + 138, no. 8.38, and personal observation.

Genova, Liguria — Gambaro and Lambert 1987, 241-43, no. 162.

Naples, Campania — Excavations at Carminiello ai Mannesi by the writer.

Nicotera, Calabria — Museum of Nicotera; personal observation.

- Ostia 1) Terme del Nuotatore — Manacorda 1977, 230-32, although the section is confused as it erroneously groups together different amphora types with certain common morphological traits. It is possible that tav. XLI no. 284 belongs to the series considered in the present article, although the date of its context, the second quarter of the 3rd c., is too early.
- 2) "Zona necropoli", in the Ship Museum, Fiumicino. Inv. no. 37739; personal observation. See also Righi 1975, 4-5, pl. 2, no. 4, from the Ponte di Matidia (2 examples and 2 more cited in the Ostia storerooms)
- Porto Torres, Sardinia — Villedieu 1984, 196 + 330, no. 291. 5th c. contexts.
- Reggio Calabria, Calabria — museum of Reggio Calabria; personal observation.
- Rome 1) Lungotevere Testaccio, ambiente V — information Mauro Incitti.
- 2) Schola Praeconum I. — Whitehouse *et al.* 1982, 77, nos. 150, 153 + poss. 152, 157-58. Mid 5th-c. context.
- 3) Schola Praeconum II. — Whitehouse *et al.* 1985, 181 + 183, fig. 7, no. 47.
- 4) Ospedale Militare del Celio. — Information Francesco Pacetti.
- 5) Constantinian Basilica on the Via Labicana — Manacorda 1981, tav. V. PM.78.34/80/85. Dating between the early and mid 4th c.
- 6) Examples in the storerooms of the Museo Lateranense al Vaticano — Manacorda 1977, 230-31, tav. LXXVII, no. 577.
- Scolacium (nr. Squillace), Calabria — excavations by E. Arslan; personal observation of 6th-c. contexts.
- Syracuse, Sicily — Fallico 1971, 609, fig. 32, no. A183.
- Tarquinia, Lazio — wreck at Pian di Spille; information Mauro Incitti.
- Vibo Valentia, Calabria — Museum of Vibo Valentia; personal observation.
- France**
- Arles — Bonifay and Villedieu forthcoming.
- Chanaz — Bonifay and Villedieu forthcoming. Mid 5th-c. context.
- Loupian — Bonifay and Villedieu forthcoming. Late 4th-c. context.
- Lyon — Bonifay and Villedieu forthcoming.
- Marseilles — Bonifay 1986.
- Saint-Raphael, Var — Joncheray 1975, 113.
- Spain** — Keay 1984, pp. 267-68, fig. 114:
- Ampurias
- Sevilla
- Tarragona
- Tunisia**
- Carthage 1) information Clementina Panella. Dating after A.D. 360.
- 2) Neuru 1980, fig. VII, nos. 51-53. Dating between A.D. 425 and 450.
- Yugoslavia**
- Near Zadar — Ursalovic 1974, 140, no. 146, dated to the 4th c.
- Near Zadar — Examples from a survey project (joint Yugoslav — University of Newcastle) (*ex inf.* J. W. Hayes)
- Split — Examples found in the main drain of Diocletian's Palace, in an assemblage dated to the late 4th-early 5th c., during excavations by S. McNally (*ex inf.* J. W. Hayes).
- Greece**
- Argos — Aupert 1980, 442, no. 338a, fig. 46; Pierart and Thalmann 1980, fig. 3, A13.
- Athens — Robinson 1959, L31, M234, M302, M323.
- Kenchreai, Corinth — Adamsheck 1979, pl. 26, no. RC12.
- Corinth — Williams and Zervos 1983, pl. 10, no. 68.
- Turkey**
- Yassi Ada — Bass and Van Doorninck 1977, 36, pl. 3, fig. 28. Wreck dated to the second half of 4th c.
- England**
- [Canterbury — The vessel cited by Keay 1984, 267-68, does not belong to this group.]

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